

Waterborne Disease Rates in Rural Alberta, including First Nations

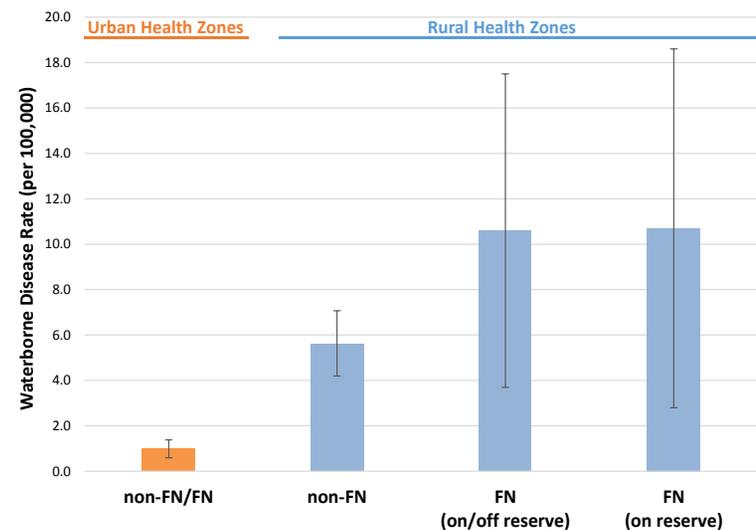
Infectious gastrointestinal disease rates due to drinking water by residence and First Nations status, Alberta, 2000-2015

Infectious gastrointestinal diseases can cause nausea, vomiting, or diarrhea. These diseases can be contracted by humans through contact with animals, through person to person transmission, or through contaminated food. They may also be transmitted through the ingestion of untreated or inadequately treated water. The largest outbreak of waterborne disease in Canada occurred due to inadequately treated water contaminated with *E. coli* in Walkerton, Ontario in 2000.¹

This edition of First Nations – Health Trends Alberta² describes the rate of infectious gastrointestinal disease possibly acquired from drinking water in First Nations (FN) and non-First Nations (non-FN) people living in urban or rural health zones in Alberta.^{3,4} Disease due to *Campylobacter*, *Giardia*, verotoxigenic *E. coli*, *Salmonella*, *Shigella*, *Cryptosporidium* and other infectious gastrointestinal diseases were included in the analysis.

For FNs living in rural health zones, the rate of disease is around double the rate in non-FNs

Between 2000 and 2015, there were 869 cases of infectious gastrointestinal diseases acquired in First Nations in Alberta: 11 of these cases may be due to drinking water (1.3% of total); 7 of these were observed in individuals who were living on reserve. In non-First Nations over the same time period, there were 32,343 cases of infectious gastrointestinal diseases: 81 of these cases may be due to drinking water (0.3% of total). Cases of infectious gastrointestinal diseases that may be related to drinking water are rare in Alberta.



Rates of infectious gastrointestinal diseases in 2000-2015 that may be due to drinking water were higher for anyone living in rural health zones compared to urban health zone dwellers. Amongst those living in rural health zones, rates differed between First Nations and non-First Nations. For First Nations living in rural health zones, either on or off reserve, the rate of waterborne disease likely due to drinking water was 10.6 per 100,000 population (95% confidence interval (CI): 3.7, 17.5). This was similar for First Nations living on reserve: 10.7 per 100,000 (95% CI: 2.8, 18.6). The rates of infectious gastrointestinal disease likely due to drinking water in First Nations were almost two times the rate observed in non-First Nations living in rural health zones over the same time period: 5.6 per 100,000 (95% CI: 4.2, 7.1).

1 Waterborne outbreak of gastroenteritis associated with a contaminated municipal water supply, Walkerton, Ontario, May-June 2000. Can Commun Dis Rep. 2000 Oct 15;26(20):170-3.

2 This is the third in a series of First Nations-specific Health Trends compiled in collaboration by Alberta Health and the Alberta First Nations Information Governance Centre (AFNIGC). To suggest future topics, please contact the AFNIGC (communications@afnigc.ca; 403-539-5775).

3 Urban health zones defined here as Edmonton and Calgary; Rural health zones defined here as Southern, Central, and Northern. See <http://www.albertahealthservices.ca/ahs-map-ahs-zones.pdf>.

4. Drinking water was considered a possible source if it was checked off in the notifiable disease report and indicates that it could have been a source of the disease, but not necessarily confirmed. See: <http://www.health.alberta.ca/documents/ND-Report-Manual.pdf>